

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 25D050
STATION NAME: Germany Creek
WATER YEAR: 2010
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Introduction

Watershed Description

This station is one of three continuously recording flow monitoring stations in the Lower Columbia River complex and one of three groups within the Intensively Monitored Watersheds project. The other two basins being monitored are Abernathy and Mill Creeks. Germany Creek, along with Abernathy and Mill Creeks historically supported runs of coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*).

Gage Location

The flow-monitoring station at Germany Creek, located on the left bank approximately ½ mile upstream from its confluence with the Columbia River, is a continuously recording, telemetered gaging station that has been on-line since June of 2004.

Table 1.

Drainage Area (square miles)	22.9
Latitude (degrees, minutes, seconds)	46 11 29 North
Longitude (degrees, minutes, seconds)	123 07 30 West

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	95
Median Annual Discharge (cfs)	73
Maximum Daily Mean Discharge (cfs)	528
Minimum Daily Mean Discharge (cfs)	3.5
Maximum Instantaneous Discharge (cfs)	662
Minimum Instantaneous Discharge (cfs)	3.5
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	235
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	11
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	10

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Discharge peaked in Germany Creek during WY2010 in November with three relatively small storm events. Moderate storm events persisted through June 2010. Discharge declined steadily during the summer months. Early autumn rains in September 2010 raised discharge above baseflow.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	2.3
Weighted Rating Error (% of discharge)	8.9
Total Potential Error (% of discharge)	11.2

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	7	4	8
Period of Ratings	10/01-07/14	07/15-08/24	08/25-09/30
Range of Ratings (cfs)	3.0-833	2.4-663	2.4-663
No. of Defining Measurements	12	12	8
Rating Error (%)	6.3	2.2	0.4

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

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Period of Ratings			
Range of Ratings (cfs)			
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Rating Error (%)			

Narrative

Discharge was predicted at the beginning of WY2010 by coupling Rating Table 7 to the stage record. Rating 7 is a relatively robust table. For a brief period in mid-summer, the rating shifted from 7 to Table 4. Rating Table 4 is a moderately robust Rating that first developed in WY 2007. WY2010 closed when the rating shifted briefly from Rating 4 to Table 8. The shifts between ratings 4 and 8 were small and limited to the medium and low ends of the rating curve.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	2.10
Maximum Recorded Stage (feet)	4.63
Range of Recorded Stage (feet)	2.53
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	4
Number of Days Qualified as Unreliable Estimates	0

Narrative

The stage record for WY2010 was complete and un-interrupted except for a 3-day gap in early March 2010. The gap was filled using extremely well regressed stage data from an adjacent gaging station on Abernathy creek. The correlation coefficient between the two regressed stage records was 0.992. October 1, 2009 was qualified as an estimate, because the recorded and shifted stage value fell below the rating curve. Discrepancies between the observed and logged gage heights were corrected for using the data shift function.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	none
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date

Activities Completed

A MS5 Hydrolab for continuously monitoring dissolved oxygen and conductivity was added to the station in October 2009.